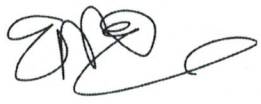
The Use of the Face Stimulus Assessment with an Early-Stage Dementia Diagnosis

By: Ashleigh Louise Mower
Master of the Arts in Art Therapy

Herron School of Art and Design
IUPUI
Indiana University



Eileen Misluk
Advisor

Heather Leigh
Committee Member

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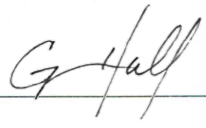

Professor Greg Hull
Interim Dean of Herron School of Art and Design

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Ashleigh Mower

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Indiana University

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ABSTRACT

This human-subject, mixed methods study, originally designed for six participants, was turned into a case study that examined the use of the Face Stimulus Assessment (FSA) with one individual diagnosed with early-stage dementia. The purpose of the study was to determine whether the participant with an early-stage dementia diagnosis could complete the FSA. Additionally, the Formal Elements Art Therapy Scale (FEATS) modified by Donna Betts for the FSA was applied to assess for applicability for individuals diagnosed with dementia.

The results of the case study are not generalizable. However, the results from the individual participant were promising. The participant was able to complete the full assessment, and the average FEATS scores from all three stimulus drawings demonstrated that with an early-stage dementia diagnosis, the FSA could be a good baseline assessment for tracking the progression of a dementia diagnosis. This case study supports continued research on the benefits of the FSA with this population.

Keywords: Art therapy, Face Stimulus Assessment (FSA), dementia, early-stage dementia, cognitive assessments, Formal Elements Art Therapy Scale (FEATS)

DEDICATION

This body of work is dedicated to the luckiest grandad in the world.

ACKNOWLEDGMENTS

I want to thank all those who have been an integral part in my journey throughout not only my thesis and research study, but also throughout this master's program. First, thank you to Eileen Misluk for supporting, encouraging, and believing in me and this study from the very beginning. I would not be writing this without your guidance and expertise throughout the entire process. Thank you to Kaitlin Knapp for your willingness to supervise this research project and for your continual support. Thank you to my professors Heather Leigh, Megan Van Meter, and Chelsea Leeds. The amount of knowledge and experience I was able to cram into my brain and being over the past two years is a testament to the level of education I received from you all. Being able to learn from you was a privilege, and I am forever changed as a person because of the care you provide to your students. And thank you to my supervisors throughout my master's program, Katie Hearn and Brenda Kenyon. The encouragement and guidance I received during both my internship experiences has helped me develop the tools I need to take on the "real world."

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To Arden: I bet you thought I forgot to list your name in the previous paragraph! Well, I didn't. I just felt you deserved a paragraph of your own. Thank you for just being there when I needed you most. Whether it was for our dance parties, 14-hour road trips, or a shoulder to cry on, you were always there. My life changed 23 years ago. At the time I thought I was only getting a little sister; little did I know I was also getting a best friend.

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CHAPTER I

INTRODUCTION

According to the World Health Organization (WHO), approximately 47 million people worldwide have been diagnosed with dementia (2019). WHO projects that that number will increase to 75 million by 2030 (2017). Additionally, by 2030, the worldwide costs for caring for those with dementia will rise from $818 billion in 2015 to $2 trillion (WHO, 2017).

Pinpointing early behavior changes and cognitive decline associated with dementia can be crucial in predicting the projection of the disease (Iliffe, Manthorpe, & Eden, 2003). Early detection allows time to put community supports in place, develop care plans, and anticipate overall care costs necessary for a comfortable transition to life with the disease for both the person with dementia and their caregivers or family members (Iliffe, Manthorpe, & Eden, 2003).

Early-stage dementia can be difficult to identify. Because there is no single test to diagnose dementia (Alzheimer's Association, 2019), a battery of tools are often used, including psychological tests (cognitive and behavioral assessments), medical examinations and tests (i.e. brain scans and laboratory tests), and social measurements (activities of daily living) (Ashford et al., 2007). The Alzheimer's Association (2019) reported that an accurate diagnosis of a mild cognitive impairment (MCI), including early-stage dementia, can potentially save Americans and the US government more than $7 trillion in long-term healthcare costs, further supporting the need for effective diagnostic tools.

Research has shown that the benefits of art therapy for people who have been diagnosed with dementia include providing a vehicle for nonverbal communication, offering opportunities for reminiscence, enabling sensory exploration and stimulation, and engaging individuals in self-reflective activities with a tangible end product (Kahn-Denis, 1997). Additionally, art therapy

can assist with diagnosis and evaluation of cognitive status (Kahn-Denis, 1997). However, to date, there has been no development of an art therapy-based assessment specifically used to assist with the diagnosis of dementia.

The Face Stimulus Assessment (FSA) is a cognitive art therapy assessment created by Donna Betts in 2003 that uses stimulus imagery of a face to help determine an individual's cognitive abilities. The Formal Elements Art Therapy Scale (FEATS) is a Likert-type rating scale that examines the relationship between the formal elements in artwork and diagnostic criteria (Gantt & Tabone, 1998). The FEATS was adapted by Betts to apply to the FSA for nonverbal autistic students (Betts, 2003).

The purpose of the following research study was to determine whether the FSA would be an appropriate assessment tool for individuals with an early-stage dementia diagnosis. This included the ability to complete the stimulus drawings, answer questions pertaining to the drawings, and effectively use the materials provided. In addition to the assessment, the researcher reviewed the use of the modified FEATS to determine whether future modifications would be needed for individuals with dementia. It is the intention of the researcher that this study will provide preliminary support for the use of the FSA as a baseline for further, larger-scale research on using the FSA with this population.

Operational Definitions

Art therapy: "An integrative mental health and human services profession that enriches the lives of individuals, families, and communities through active art-making, creative process, applied psychological theory, and human experience within a psychotherapeutic relationship" (American Art Therapy Association, 2017, para. 1).

Dementia: "A syndrome—usually of a chronic or progressive nature—in which there is deterioration in cognitive function (i.e. the ability to process thought) beyond what might be expected from normal ageing. It affects memory, thinking, orientation, comprehension, calculation, learning capacity, language, and judgement. Consciousness is not affected. The impairment in cognitive function is commonly accompanied, and occasionally preceded, by deterioration in emotional control, social behavior, or motivation" (World Health Organization [WHO], 2019, para. 1)

Early-stage dementia: A diagnosis characterized by symptoms such as issues with memory, language, speed of thought, and behavior that begin to affect an individual's everyday life. Those with early-stage dementia are able to be fairly independent (Alzheimer's Association, 2019a).

Face Stimulus Assessment (FSA): A three-part art therapy assessment that uses stimuli images to assess cognitive functioning (Betts, 2003).

Formal Elements Art Therapy Scale (FEATS): A 0–5 Likert rating scale system that measures 14 specific global variables in 2D artwork (Gantt, 2016). These variables are prominence of color, color fit, implied energy, space, integration, logic, realism, problem solving, developmental level, details of objects and environment, line quality, person, rotation, and perseveration.

Modified Formal Elements Art Therapy Scale (FEATS): A modified version of the FEATS. The modified FEATS was developed to apply to the FSA. It includes the following components: prominence of color, color fit, implied energy logic, realism, developmental level, details of objects and environment, line quality, and perseveration (Betts, 2003).

Executive functioning: The high-level cognitive thinking used to control and coordinate other cognitive abilities, such as organizing information (e.g. attention, planning, sequencing, problem-solving, working memory, cognitive flexibility, abstract thinking, rule acquisition, selecting relevant sensory information) and regulating that information in response to the environment (initiation of action, self-control, emotional regulation, monitoring internal and external stimuli, initiating and inhibiting context-specific behavior, moral reasoning, decision-making) (University of California, San Francisco: Memory and Aging Center [UCSF], 2020).

Abstract thinking: Described by Dumontheil (2014) as follows: "Thoughts can be temporally abstract and relate to long term goals, or past or future events, or relationally abstract and focus on the relationships between representations rather than simple stimulus features" (p. 58).

Visuospatial functioning: The ability to determine and identify where an object or stimulus is in space (Quental et al., 2013).

Graphic indicator: In a review of research, no single definition of graphic indicators was found. For the purposes of this thesis, a graphic indicator is defined as a common, identifiable, and consistent drawn characteristic or element in artwork. This definition is based on research by Gantt and Tabone (1998) on global characteristics (p. 23).

CHAPTER II

LITERATURE REVIEW

Dementia is known as a syndrome associated with memory loss. However, it is far more complex and integrated than simply having issues with memory. *Dementia* is an umbrella term used to describe chronic and progressive brain deterioration that causes disturbances in higher cortical functioning affecting memory, judgment, comprehension, language, motivation, orientation, and self-regulation (Broderick & Blewitt, 2015, p. 561; Nuffield Council on Bioethics, 2009; World Health Organization [WHO], 2012).

Types of Dementia

There are many different types of dementia, including Alzheimer's disease, vascular dementia, frontotemporal dementia, Lewy Body dementia, Parkinson's disease, and mixed dementia (Alzheimer's Association, 2019b). Of these, Alzheimer's disease is the most common. Although each dementia type is different, there is no cure for any diagnosis of dementia. Every type of dementia is pervasive and chronic, worsens over time, and is irreversible (Sahyouni, Varma, & Chen, 2017, p. 60).

Alzheimer's disease. During the progression of Alzheimer's disease (AD), excessive protein fragments (beta-amyloid, or plaques) accumulate on outer areas of neurons in the brain and twisted strands of protein (tau, or tangles) collect inside neurons in the brain (Alzheimer's Association, 2018a; Alzheimer's Society, 2017; Nuffield Council on Bioethics, 2009). Over time, the buildup of these proteins block chemical connections between neurons, causing the neurons to die (Alzheimer's Society, 2017). Protein accumulation typical of AD occurs years before any symptoms of the disease arise, which is why AD is considered a slow progressive brain disease (Alzheimer's Association, 2018a).

Early symptomology of AD includes difficulty remembering recent conversations, names, or events; apathy; depression (Alzheimer's Association, 2018a); and issues with abstract thinking, and with executive and visuospatial functioning (Quental et al., 2013). As AD progresses, symptoms include "impaired communication, disorientation, confusion, poor judgment, behavioral changes, and ultimately difficulty speaking, swallowing and walking" (Alzheimer's Association, 2018a, p. 369).

Historically, an AD diagnosis—elevated levels of beta-amyloid and tau in the brain—could be confirmed only after a postmortem examination (Alzheimer's Association, 2018a). However, a 2011 study published by the National Institute on Aging found that the biomarkers present postmortem can also be detected in live subjects through the use of positron emission tomography (PET) imaging and cerebrospinal fluid (CSF) tests (Alzheimer's Association, 2018a). An informed diagnosis of dementia requires multiple components of a large-scale assessment.

Vascular dementia. Vascular dementia (VD) occurs as a result of blood vessel blockages within the brain. These blockages generate a lack of oxygen supply, causing the death of brain cells and tissue and/or brain bleeding (Alzheimer's Association, 2018a; Alzheimer's Society, 2017; Nuffield Council on Bioethics, 2009, p. 5). VD is most common with individuals who have experienced a stroke or a series of small strokes. The area of the brain damaged due to an interruption in blood supply or stroke determines what type of VD is present. There are two types: single-infarct VD and multi-infarct VD. Single-infarct VD is a result of one large stroke affecting one single and sometimes large area of the brain. With single-infarct VD, symptoms are noticeable directly after the stroke (Nuffield Council on Bioethics, 2009). In contrast, multi-infarct VD is due to multiple smaller strokes occurring over time that affect many different areas

of the brain. With multi-infarct VD, symptoms are more gradual and worsen over time (Nuffield Council on Bioethics, 2009). VD's early symptoms include "impaired judgment or impaired ability to make decisions, plan or organize" (Alzheimer's Association, 2018a, p. 369). This differs from the memory loss symptomatic of AD.

Frontotemporal dementia. Frontotemporal dementia (FTD) is caused by damage to or deterioration in the frontal or temporal lobes in the brain (Nuffield Council on Bioethics, 2009, p. 5). When FTD is present, the affected lobe becomes atrophied and the upper layers of the cerebral cortex become soft and spongy (Alzheimer's Association, 2018a). FTD has little to no effects on a person's memory. Instead, it affects the ability to communicate through language, speech, and behavior (Alzheimer's Association, 2018a). The three different clinical forms of FTD are behavioral variant FTD, temporal variant (semantic) dementia, and progressive nonfluent aphasia (Fymat, 2018). Behavioral variant FTD is the most common of the three and results in changes to a person's personality and behavior. Symptoms of temporal variant (semantic) dementia include issues with producing and/or comprehending language (Alzheimer's Association, 2018a). Progressive nonfluent aphasia is present when a person gradually loses the ability to communicate verbally, leaving the person mute (Fymat, 2018). According to the Alzheimer's Association (2018a), 60 percent of people diagnosed with FTD are between 45 and 60 years old.

Lewy body disease. Dementia with Lewy body (DLB) is a result of abnormal clumps (Lewy bodies) of a spherical protein called alpha-synuclein (Alzheimer's Association, 2018a). A buildup of these clumps in neurons causes chemical imbalances and disruptions in normal neural transmission functions in the brain (Nuffield Council on Bioethics, 2009). While many symptoms of DLB are similar to AD, the following are unique to DLB: sleep disturbances, visual

hallucinations, attention disorientation, executive functioning difficulties, and motor functioning similar to Parkinson's disease (PD) (Alzheimer's Association, 2018a).

Parkinson's disease and mixed dementia. The aggregations of Lewy bodies that are responsible for DLB are also present for those with Parkinson's disease (PD). With DLB, Lewy bodies develop in the cerebral cortex, causing cognitive impairment. In contrast, with PD, Lewy bodies develop in the substantia nigra, affecting motor functioning (Alzheimer's Association, 2018a). As PD progresses, it often results in AD or DLB as a secondary dementia. A pathology with multiple dementia diagnoses is referred to as *mixed dementia*. According to the Alzheimer's Association (2018a), mixed dementia is more common than previously reported. Newer studies suggest 50 percent of people diagnosed with a specific type of dementia may eventually present with symptoms of more than one specific type of dementia (Alzheimer's Association, 2018a).

Dementia Diagnosis

Diagnosing dementia is complex, time-consuming, and sometimes expensive. Dementia is split into three primary stages: early-, middle-, and late-stage dementia (Dementia Care Central, 2018; WHO 2017).

As noted, there is no single diagnostic tool for dementia. When assessing an individual for dementia, many components are reviewed to ensure an accurate diagnosis. Physicians, with the help of specialists such as geriatricians, geriatric psychiatrists, and neurologists, can diagnose a person with dementia by having extensive conversations with family members or caregivers regarding changes in psychosocial functioning, performing medical examinations, and administering cognitive assessments. The following sections provide an overview of the variety of assessment measures used for diagnosing dementia.

Psychosocial functioning. An assessment of psychosocial functioning is usually conducted with the immediate family by a geriatrician. During the assessment, the geriatrician enquires about mood and behavioral changes, family medical history, psychiatric history, and current and past illnesses (Alzheimer's Association, 2020). This is done primarily because family members and caregivers are more likely to notice changes in the individual before the individual is assessed (Bunn et at., 2012). This process also provides the geriatrician and other healthcare providers with an understanding of existing support systems and an opportunity to discuss available support options after a diagnosis has been made (Bunn et al., 2012). The psychosocial functioning assessment enables the geriatrician to rule out other mental health issues that could be presenting with similar symptomologies (Alzheimer's Association, 2018a).

Medical examinations. Medical examinations are conducted by a geriatrician to rule out other health issues that present with dementia-like symptoms, such as depression, untreated sleep apnea, delirium, side effects of medications, thyroid problems, certain vitamin deficiencies, and excessive alcohol consumption (Alzheimer's Association, 2020). The geriatrician will also assess for signs of strokes that can lead to VD (Stanford Health Care, 2020c).

Brain image scans may be conducted to detect underlying issues that cause dementia or to rule out other issues that could be causing dementia-like symptoms (Alzheimer's Association, 2020; Stanford Health Care, 2020a). Types of image scans used to detect dementia include computed tomographic (CT) scans and magnetic resonance imaging (MRI) scans (Alzheimer's Association, 2020; Stanford Health Care, 2020a). CT scans can be used to detect evidence of brain atrophy, strokes, and changes in blood vessels. MRIs can be used to detect the same issues as a CT scan, but are better at detecting brain atrophy and brain damage from smaller strokes (Alzheimer's Association, 2020; Stanford Health Care, 2020a). A third type of image scan is a

positron emission tomography (PET) scan. PET scans can be used detect changes in glucose metabolism, the presence of beta-amyloid proteins in the brain, and problems with blood flow (Stanford Health Care, 2020a). However, PET scans that detect tau proteins in the brain are currently available only through research studies (Stanford Health Care, 2020a).

Laboratory tests are another type of medical examination that geriatricians use to rule out other health conditions, such as a hormone imbalance (Stanford Health Care, 2020b). These lab tests include "complete blood count, blood glucose test, urinalysis, drug and alcohol screenings, cerebrospinal fluid analysis (to rule out specific infections that can affect the brain), and analysis of thyroid and thyroid-stimulating hormone levels" (Stanford Health Care, 2020b, para. 1).

Cognitive assessments. According to Stanford Heath Care (2020c), cognitive assessments measure "memory, language skills, math skills, visual and spatial skills, and other abilities related to mental functioning to help them diagnose a patient's condition accurately" (para. 1). The most common cognitive assessments include the Mini-Mental State Examination (MMSE) and the Montreal Cognitive Assessment (MoCA). The MMSE is a cognitive functioning tool used to assess orientation, registration, attention and calculation, recall, language, repetition, reading, writing, comprehension of commands, and drawing (Carnero-Pardo, 2013). The exam takes approximately 7–10 minutes and scores range between 0 and 30. A score between 20 and 24 on the MMSE suggests signs of early-stage dementia, a score between 13 and 20 suggests middle-stage dementia, and anything lower than 12 indicates late-stage dementia (Alzheimer's Association, 2020). The MoCA is a 30-question tool that offers the ability to accurately detect MCI and early-stage dementia (Fymat, 2018; Pinto et al., 2019). Unlike the MMSE, the MoCA can be used to test executive functioning, higher-level language abilities, and complex visuospatial processing (Nasreddine et al., 2005).

The clock drawing test (CDT) is a widely used screening tool for dementia. Accurately completing the test requires auditory and visual comprehension, concentration, visuospatial abilities, abstract thinking, and executive control (Cacho et al., 2010; Wang et al., 2014). CDT scores correlate with MMSE scores; however, according to Wang et al. (2014), there are 11 different scoring systems and processes for administration and scoring the CDT. The most common administration is to ask the individual to add numbers and hands to a pre-drawn circle to resemble a clock set to a specific time (Cacho et al., 2010). The CDT is easy and fast to administer, has less educational bias than the MMSE, is suitable for non–English speaking individuals, and allows for the evaluation of multiple cognitive domains (Cacho et al., 2010; Nair et al., 2010).

An additional tool used by geriatricians is the Functional Staging Assessment Test (FAST). Like the GDS, the FAST has seven stages, but instead of testing for cognitive functioning, it assesses the level of functioning in daily activities (Dementia Care Central, 2018). It is possible for a person to be at a different cognitive stage on the GDS than functioning on the FAST (Dementia Care Central, 2018). The FAST scale is often given to family members or care takers of individuals presenting with dementia. The stages of dementia are explained next.

Stages of dementia. The foundation for the three stages of a dementia diagnosis (early-, middle-, and late-stage) derives from a seven sub-stage assessment: The Global Deterioration Scale (GDS), also called the Reisberg Scale. The GDS is a standardized tool used to assess and track symptomology and treatment needs as the disease progresses. The GDS is primarily used to assess symptoms of AD. However, it can be used to assess the stage progression for other types of dementia (Dementia Care Central, 2018). The stages of the GDS are described here.

Stage 1 and 2. In stage 1, a person functions with no signs of cognitive decline or signs of memory deficit (Reisberg, Ferris, De Leon, & Crook, 1982). In stage 2, an individual presents with forgetfulness that is common with the "normal" aging process (Dementia Care Central, 2018; Reisberg et al., 1982). Stages 1 and 2 on the GDS typically do not exhibit enough symptomology for a dementia diagnosis (Dementia Care Central, 2018; Reisberg et al., 1982).

Stage 3. Stage 3 is classified as MCI; where the earliest and clear signs of memory deficits become apparent (Reisberg et al., 1982). However, this stage is difficult to diagnose because symptomologies do not disrupt day-to-day functioning or abilities (Alzheimer's Association, 2019a). MCI can either develop into a form of dementia, remain stagnant, or even improve with cognitive performance (Mitchell & Shiri-Feshki, 2009). Intensive interviews conducted by geriatric psychiatrists are used to identify difficulties in concentration, difficulties in performance at work and around people, and observable behaviors (e.g. losing keys or objects of importance, forgetting names, and/or having difficulty finding words) (Reisberg et al., 1982). It is common for individuals to experience mild to moderate anxiety in this stage due to coping with the changes and challenges they are experiencing in the workplace and in social settings (Reisberg et al., 1982).

Stage 4. In this stage, the differentiation between MCI and an early-stage dementia diagnosis is present. Therefore, stage 4 is considered early-stage dementia. Symptomology including cognitive decline is apparent and evident in both clinical testing and interviews. Symptoms such as the following are also noted in this stage: deficits in short-term memory, decreased knowledge or confusion in life stories or personal events, difficulty or changes in concentration and executive functioning, changes in behavior and/or personality (i.e. depression, apathy, wandering, sleep disturbances, agitation, and aggression), and an inability to travel alone,

manage personal finances, engage socially, and perform complex tasks accurately and efficiently (Alzheimer's Association, 2018b; Fymat, 2018; Reisberg et al., 1982). Vocabulary retrieval, verbal fluency, and comprehension of higher-order written and spoken languages also become impaired in the early stages of AD (Ferris and Farlow, 2013).

Some individuals present with denial as a defense mechanism for the overwhelming loss and recognition of their cognitive decline (Reisberg et al., 1982). Even though decline is inescapable at this stage, individuals still have the ability to recognize familiar faces and orient themselves in time and space (Reisberg et al., 1982). According to the GDS, by the time symptoms of cognitive decline or behavioral changes are present and noticeable, a person has met the criteria for stage 4 (Dementia Care Central, 2018; Reisberg et al., 1982).

Stage 5. Stage 5 is characterized by moderate cognitive decline and marks the beginning phase of a middle-stage dementia diagnosis. The middle stage is the longest stage in the progression of the disease, lasting for many years (Alzheimer's Association, 2018b). During this stage, the level of care for an individual increases (Alzheimer's Association, 2018b) due to symptoms like disorientation with time and space, decline in attention to daily living skills like selecting appropriate clothing and personal hygiene, forgetting names of friends and colleagues, difficulty with addresses and telephone numbers, and difficulty completing simple daily tasks (Alzheimer's Association, 2018b; Reisberg et al., 1982).

Stage 6. Like stage 5, stage 6 is classified as middle-stage dementia. Individuals in the sixth stage lose almost all ability to care for themselves, require extensive assistance with daily activities, and experience continuous decline in short-term and long-term memory (Alzheimer's Association, 2018b; Fymat, 2018; Reisberg et al., 1982). Older adults in this stage often experience changes in sleep patterns, spatial orientation (e.g. wandering or becoming lost), and

significant emotional and behavioral changes, such as suspiciousness, delusions, and repetitive and/or compulsive behaviors (Alzheimer's Association, 2018b; Reisberg et al., 1982). Anxiety tends to increase, causing agitation and sometimes violent behaviors, as well as cognitive abulia, or a "loss of willpower that occurs because an individual cannot carry a thought long enough to determine a purposeful course of action" (Reisberg et al., 1982, p. 1137).

Stage 7. When an individual has reached terminal and late-stage dementia—stage 7—verbal abilities and communication are severely impaired. By this stage, the individual has lost the ability to respond to their environment, carry on conversations, eat on their own, support their head, and communicate facial expressions (Alzheimer's Association, 2018b). Eventually, their reflexes become abnormal, muscles become rigid, and they have difficulty swallowing (Reisberg et al., 1982). Care for older adults at this stage include hospice as well as engaging in calming care such as listening to relaxing music and offering reassuring touch (Alzheimer's Association, 2018b).

Dementia and Art

Making art and engaging in the creative process can be effective with older adults who have dementia in assisting with the evaluation of cognitive functioning, diagnoses (Kahn-Dennis, 1997), and rehabilitation strategies (Palmiero et al., 2012). More recently, there has been a spike in research regarding the evaluation of creativity and its relationship with brain deterioration present in dementia (Palmiero et al., 2012). Studies with professional artists diagnosed with dementia have demonstrated an ability to track the progression of the disease (Kahn-Denis, 1997; Stewart, 2004)—although research on the use of artmaking as a means to track the progression of the disease in non-artists appears to be lacking.

Stewart (2004) found patients with an early-stage dementia diagnosis had the ability to use color appropriately, include depth and proportion, and render a high level of detail in their artwork. Three-quarters of individuals with middle-stage dementia were able to use color in a "somewhat" appropriate fashion and attempted to generate representational forms and shapes (Stewart, 2004). However, individuals in late stage dementia were capable of making art using only scribbles, and color was not used representationally (Stewart, 2004).

Palmiero et al. (2012) conducted an analysis of literature and found that patients diagnosed with AD or FTD showed a decrease in creativity over time. Researchers have noted that the progression of artwork of individuals with AD is parallel to the progression of the disease, with the artwork becoming more abstract and simple, reflecting a more restricted color palette, and being characterized by increasingly distorted perspective and changes in visuospatial/constructive organization (Mendez, 2004; Palmiero et al., 2012; Safar & Press, 2011). Maurer and Prvulovic (2004) found that when an AD diagnosis involved damage to visuospatial functioning in the brain, common graphic indicators in artwork consisted of "fewer angles, impairment of both depth perception and spatial relations, and oversimplification" (p. 236). In contrast, artwork by those with FTD presents characteristics of bizarreness, disinhibition, and alterations in social behaviors and personality, but visuospatial abilities and perceptual and motor planning skills remain evident (Palmiero et al., 2012).

Kahn-Denis (1997) reported consistent and common graphic changes in artwork for those with dementia, including the presence of short and scattered lines, perseveration (i.e. repetition of lines, symbols, or shapes), a small and cramped appearance, and overlapping configurations. Additionally, fragmentation, perceptual rotation, and confused perspective, disconnections, and interruptions in the process of drawing were observed. Finally, omissions of essential features in

artwork causing an impoverished appearance was reported, as was difficulty following or comprehending directions Kahn-Denis, 1997).

Stewart (2004) stated that artwork—when viewed over time—has the ability to track the progression of dementia. Although it is difficult to assess the production and meaning behind works of art made by individuals with dementia, it is possible to analyze artwork with objective assessments (Palmiero et al., 2012) such as cognitive art therapy assessments because of their focus on consistent graphic indicators that can be tracked over time.

Art Therapy Assessments

Drawings add an additional element of communication, serve as a bridge between the client and therapist, and can be a primary source for measuring a person's current level of functioning (Oster, 2004). Although anthropologists, educators, psychologists, and psychiatrists have been using art in therapy since 1887, it was not until the 1950s that art therapists began using and exploring ways in which art-based assessments could be standardized (Betts, 2016).

Art therapists use two general types of art-based assessments: informal and formal. Informal assessments include clinical interviews or observational sessions, while formal assessments include standardized materials, rating systems, and procedures (Deaver, 2016).

The use of projective drawing assessments in art therapy has been widely debated, primarily because studies yield mixed results. However, Gantt (2004) explained that assessments that yield research are a fundamental requirement for all developing and existing professions, noting that:

> …demands for objectivity and a sound scientific basis apply to social work, medicine, counseling, and the other creative arts therapies. It is imperative to show the efficacy of one's interventions or treatments… (p. 19).

Art-based assessments are often used by art therapists as a tool for client evaluation to determine their level of functioning, formulate treatment objectives, assess strengths, gain an understanding of the presenting problems, and evaluate progress over time (Betts, 2006). There is no single art-therapy assessment that works for all clients in all settings; therefore, assessments should be selected for a client's specific needs (Betts, 2013a). In 2013, Betts organized and described four domains of art-therapy assessments: clinical interview, assessment of relationship dynamics, cognitive/neuropsychological and developmental evaluation, and tools that address various realms of treatment (Betts, 2013a).

Universal terminology is essentially to building the foundation of understanding needed to interpret and analyze art therapy assessments. Barnet (2011) calls formal analysis "the result of looking closely—[it] is an analysis of the form the artist produces; that is an analysis of the work of art, which is made up of things such as line, shape, color, texture, mass, composition" (p. 46). Formal analysis is not based on opinions, but rather on observations by the viewer. It is composed of two subcategories: formal elements and principles of design. Formal elements—line, shape, color, form, texture, and space—are described as the components that make up the artwork, can be isolated and defined, and are observable (Getlein, 2004). Principles of design—unity, balance, repetition, pattern, emphasis, proportion, movement, variety, and rhythm—are ways in which artists use the formal elements in decision-making when creating artwork (Getlein, 2004; Getty, 2011a). Formal elements and principles of design are not just the language in which art is understood and interpreted; they are also instinctual—a natural part of human perception. Artists usually become more aware of them as they are trained to understand how they are used and observed in artmaking (Getlein, 2004; Getty, 2011b).

Because formal analysis uses a formalized language to describe elements in artwork and is based on the observation of artwork and not on opinions, it can be used with quantitative variables (Pénzes et al., 2018). Art therapists can observe formal elements to formulate a perspective on an individual's level of functioning as well as their strengths and weaknesses to support a descriptive diagnosis (Pénzes et al., 2018).

The Formal Elements Art Therapy Scale (FEATS)

The Formal Elements Art Therapy Scale (FEATS) was created by Linda Gantt and Carmello Tabone in 1990 to measure specific global variables that were hypothesized to be the graphic equivalents of psychiatric symptoms (Gantt & Tabone, 1998). Gantt and Tabone used diagnostic criteria from the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition* (*DSM III*) as well as drawings created over the course of several decades to correlate a specific diagnosis with characteristics found in artwork (Gantt, 2016).

The FEATS is a 0–5 Likert-type rating scale that provides quantitative and standardized measuring variables on drawn imagery. The FEATS was originally created for an art therapy assessment called *Person Picking an Apple from a Tree* (PPAT; Gantt, 2016). This assessment supported the development of the FEATS because the content of the drawing is both consistent and ideal for researching differing characteristics in drawings for various groups of people (Gantt & Tabone, 1998). Gantt and Tabone wanted to see "what diagnostic information drawings conveyed without any additional information from or about the artist" (Gantt, 2016, p. 54). They also wanted to prove that diagnostic information was embedded not only in *what* the artwork is about, but also in *how* the artwork is done (Gantt and Tabone, 1998). The FEATS was developed and remains an important rating tools for art therapists because it focuses on the process and product of the artwork and not the individual. The manual created to accompany the FEATS

provides rating samples, directions, and an alignment guide for diagnostic criteria as they relate to the rating of the artwork.

The research conducted by Gantt and Tabone suggested that formal elements of art translate to psychiatric symptomology and that the following 14 variables (or elements) may correlate with changing symptoms of a diagnosis (Stewart, 2004). The following overview provides an understanding of how each variable is defined and interpreted with regard to the PPAT drawing.

Prominence of color. Measures the way in which the individual uses color throughout the entire drawing (Gantt, 2009; Gantt & Tabone, 1998). Gantt and Tabone (1998) stated that color is related to affect and that color has an emotional impact.

Color fit. Measures how conventional or realistic color choices are in the face and surrounding imagery (Gantt, 2009; Gantt & Tabone, 1998).

Implied energy. Measures the amount of effort the rater believes it took for the participant to complete the drawing (Gantt, 2009; Gantt & Tabone, 1998).

Space. Refers to and measures the amount of space filled and used for the drawing (Gantt, 2009; Gantt & Tabone, 1998)

Integration. Understood as whether or not the subjects and elements within the drawing are related to each other, balanced, and cohesive (Gantt, 2009; Gantt & Tabone, 1998).

Logic. Relates to whether bizarre or irrational elements that are not a part of the requested response of the assessment appear within the drawing (Gantt, 2009; Gantt & Tabone, 1998). It can also show impairment in abstract thinking (Gantt & Tabone, 1998).

Realism. Relates to how recognizable all the elements are in the drawing. The more realistic and three dimensional the drawing appears to be, the higher the rating (Betts, 2013b; Gantt, 2009; Gantt & Tabone, 1998).

Problem solving. Measures whether or not the individual drew a person picking an apple from a tree and how they accomplished this task (Gantt, 2009; Gantt & Tabone, 1998).

Developmental level. Developed from Viktor Lowenfeld's stages of artistic development (Betts, 2013b; Gantt, 2009; Gantt & Tabone, 1998). The five stages are scribbling, preschematic, schematic, dawning realism, and pseudo-naturalistic (Lowenfeld & Brittain, 1987). These developmental levels are aligned with the chronological age in which the individual would have mastered the tasks of that stage.

Details of objects and environment. Identifies objects depicted in the drawing and any additional features to the figure and objects in the final image (Betts, 2013b; Gantt, 2009; Gantt & Tabone, 1998).

Line quality. Identifies how much control the participant exhibited when drawing the lines in the image (Betts, 2013b; Gantt, 2009; Gantt & Tabone, 1998).

Person. Measures the individual's ability to draw a person either as a stick figure or a three-dimensional form (Gantt & Tabone, 1998). Fragmentation or distortion of the human figure in the drawing are found in several psychiatric disorders (Gantt & Tabone, 1998).

Rotation. Measures the amount of tilt or rotation objects drawn in the image display in relation to the plane, horizon, or ground on which they rest (Gantt, 2009; Gantt & Tabone, 1998).

Perseveration. Describes the repetition of lines, forms, and/or shapes. Perseveration is explained as a "repeated motor act such as making a short line over and over without seeming to

be aware of doing so" (Gantt, 2009, p. 128). Perseveration can be found in artwork created by those who have conditions affecting the frontal lobe, like AD (Gantt & Tabone, 1998).

Since the development of the FEATS in 1990, it has been recommended that future research be conducted with larger-scale normative studies, studies with distinct populations, and the alignment of the FEATS with other drawing assessments to further enhance the understanding and applicability of this rating tool (Gantt, 2016). Studies that inform specific clusters or patterns in scores (high scores on certain variables and low scores on other variables) that best describe artist changes indicative of certain diagnoses are also called for (Gantt, 2001; Gannt & Tabone, 1998). For example, individuals with major depressive disorder have clusters or patterns of low scores with the prominence of color, space, and implied energy variables and high scores on the logic variable (Gantt, 2001). In Gantt and Tabone's research during the development of the FEATS, "considerable differences were seen if drawings were collected before and after a person received psychotropic medication" (Gantt, 2016, p. 571). This allows for the assumption that artwork has the ability to track psychological states and treatment progress.

The FEATS is a versatile rating tool that can be applied to many different drawing assessments, allowing for artwork to be formally assessed and tested with various populations.

Face Stimulus Assessment (FSA)

The Face Stimulus Assessment (FSA) was created to help clinicians better understand the cognitive, developmental, and creative potentials of children, adolescents, and adults (Betts, 2003; Mattson & Betts, 2016), with a specific focus on the cognition of nonverbal autistic students (Betts, 2003).The FSA involves the presentation of three consecutive stimulus drawings. The first stimulus drawing is of a face, including the outline of a head, shoulders, eyes, nose,

ears, mouth, and eyebrows. The second stimulus drawing is an outline of the head and shoulders. The third drawing is a blank sheet of paper. Ideally, giving a participant two consecutive opportunities to organize facial elements on the first two stimulus drawings presents an opportunity to show memory and visual retention in the third image (Betts, 2003). According to Mattson and Betts (2016):

> The theoretical basis of stimulus drawings relies heavily on behavioral fading, in which a participant received fewer cues with each successive drawing. The participant then responds to the final stimulus without referring to the previous drawings, with the intention that the participant learned the faded cues (p. 580).

The FSA can reveal a person's capacity for visual retention, memory, and arrangement, as the images are given in succession to one another.

The FSA uses a modified version of the FEATS to rate only the second picture. The modified FEATS includes nine of the original 14 variable scales: prominence of color, color fit, implied energy, logic, realism, developmental level, details of objects and environment, line quality, and perseveration (Betts, 2013b). Mattson and Betts (2003) explain that only the second image is to be rated using the modified FEATS because the nine scales are more relevant for this drawing. The second drawing provides the least amount of stimulus, which allows for the best determination in developmental level and cognitive skills (Mattson & Betts, 2003).

For the facial features in drawing 1, steps were taken to create a stimulus image that was culturally inclusive (Betts, 2003). Betts (2003) stated, "The making of a face stimulus that was gender neutral, nonspecific as to age, and representative of a variety of cultures was a difficult task" (p. 78).

The decision to use a face as the stimulus image relates to the fact that in early infancy, babies are attracted to human faces, and have the ability to maintain their attention when looking at a face (Betts, 2003). The face is also the main region of the body that is directly correlated with expressions of emotion and aesthetic judgement (Betts, 2003). For Betts, working with individuals and face stimulus imagery raised a lot of observations pertaining to an individual's capacity for memory, perception, and cognitive abilities (Betts, 2003).

Limited research has been conducted on the use of the FSA with those diagnosed with dementia. Kim and Betts (2016) conducted a correlational study of the FSA and the clock-drawing test (CDT) to see if the FSA could be used as a diagnostic tool. The study did not use the modified FEATS Betts created with the FSA as the rating instrument. Instead, it used a rating system developed by Kim in 2010 (Kim & Betts, 2016). The results indicated that the FSA could be used as a diagnostic tool to screen for dementia (Kim & Betts, 2016).

This promising study demonstrates the need for continued research in the connection between dementia and art therapy assessments, specifically in the effectiveness of the FSA as an assessment tool for individuals with dementia.

CHAPTER III

METHOD

Design of Study

In this pilot, mixed-methods study, the FSA was administered with an individual with an early-stage dementia diagnosis. A *pilot study* is a small-scale study conducted to evaluate whether a large-scale study might be called for in the future. The quantitative portion of this study included the modified FEATS rating scale for the FSA and the researcher developed additional FSA observation form. The purpose of the study was to determine whether participants with an early-stage dementia diagnosis could complete the FSA. Additionally, the study sought to assess the applicability of the FSA (and the modified FEATS) and whether it would need to be modified for use with individuals diagnosed with dementia. At the time of the study, there was no published research on the use of the FSA and modified FEATS with individuals diagnosed with dementia.

Location and Time Period of Study

The study was conducted at a geriatric center that was a part of a large, metropolitan hospital. A *geriatric center* is a specialty unit attached to a large-scale hospital that specializes in the health of older adults. The full study took place from January 2020 through March 2020. The signing of consent forms and the administration of the FSA were held in a private conference room at the geriatric center. Consent signage and administration happened in the same session (see Appendix A and Appendix B). A time frame of 2.5 hours was allotted for consent signage and FSA administration. This included 30 minutes for consent review, 30 minutes for questions, 60 minutes for FSA administration, and 30 minutes to fill out the participant inquiry form. The study was approved by both the hospital and university's Institutional Review Board (IRB).

Subject Type and Source

Participants were patients of the geriatric center. The study was designed for six participants with an early-stage dementia diagnosis.

Enrollment, Recruitment, Inclusion, and Exclusion Criteria

The principal investigator and researcher worked with personnel at the supporting research facility to screen for participants to use in the study. Subjects were recruited by social workers at the geriatric center. Subjects who were interested in participating in the study were then contacted via phone by the researcher to schedule a time and date for administration of the FSA and to address questions.

The inclusion criteria were an early-stage dementia diagnosis. Exclusion criteria included severe vision impairment or blindness (because of the nature of the scoring criteria for the FSA). Parkinson tremors were also considered an exclusion because they may lead to specific outliers for the perseveration section of the modified FEATS. Finally, participants who were not proficient in the English language were excluded due to limitations when answering questions on the participant inquiry form.

Investigational Methods and Procedures

Informed consent. Before administering the FSA, the researcher met with each participant and their legally authorized representative (LAR) to review and sign consent forms and to answer questions posed by the participant or LAR with regard to the study. The researcher also verbally reviewed the following consent items: study withdrawal, assessment length, and confidentiality. After the consent form was signed by both the participant and the LAR, the FSA was administered, and the participant inquiry form was addressed.

Instrumentation. The FSA is a copyrighted assessment, including the directions for the materials, administration, and evaluation (Betts, 2013b).

Materials were organized before the start of the assessment and included the FSA stimulus drawings and one pack of eight multicultural markers (that is, markers that reflect a variety of skin tones) and one pack of eight colored markers. The markers were mixed together and placed on the table to the right of the participant's seat. After the consent form was reviewed and signed by both the participant and the LAR, the LAR was asked to leave the room to avoid distracting the participant or assisting them with the assessment. The researcher administered the FSA. The FSA has a time limit of 60 minutes. Afterward the researcher and the participant went over the FSA participant inquiry form per the manual instructions.

The researcher used an FSA observation form (Appendix C) created to track the following behavioral observations: participant's ability to complete the FSA, recorded time of completion, redirection, fine and gross motor skills ability, and any other notable verbalizations or behaviors. The development of this form was informed by the research of Denis-Kahn (1997) and symptomology of dementia presented by the Alzheimer's Association (2018a; 2018b; Fymat, 2018; Reisberg et al., 1982).

The ability to complete the FSA was scored on a yes or no scale based on the completion of the FSA in the allotted 60-minute time frame. If the participant did not draw a face for the second drawing in the assessment, it was recorded as an incomplete assessment. Time of completion for all three drawings was recorded in minutes. Redirection was recorded as the number of times the researcher had to repeat the directions and/or the number of times the participant displayed verbalizations or behaviors that were incongruent with the task. Fine motors skills, determined by the participant's ability to make small and/or detailed marks on the

page, were recorded. Gross motors skills, determined by the participant's ability to make large and/or concise marks on the page, were also recorded. The researcher also recorded whether the participant needed to use grip assistance (in this case, foam tubes on markers) when holding the markers.

Data collection. Data collection began in January 2020 and ended in March 2020. Data and documents were collected and stored in both physical/hard-copy format and on a password-protected computer. Physical copies of consent forms, FSA drawings (three sheets of paper), *FSA Rating Manual 2nd Edition*, the Face Stimulus Assessment (FSA) participant inquiry form, and the additional FSA observation form were stored behind two locks in the Principal Investigator office on the main hospital campus.

Collected study data were stored on the hospital server with two password-protected Excel spreadsheets. One Excel spreadsheet contained personal health information (PHI) and personally identifiable information (PII). The second Excel spreadsheet held collected study variables. The two spreadsheets were linked by a study ID number. After the results of the study are presented and/or published, the Excel spreadsheets containing PHI and PII were destroyed. Participants in the study had all identifiers removed from all documents except the consent forms and were given a unique identification code to eliminate a breach of confidentiality after the completion of the study. Any presentations or publications of the study will exclude all identifiers.

Physical copies of the FSA assessment and *FSA Rating Manual 2nd Edition* were rated by HIPAA-compliant art-therapy professionals. No identifying information was shared with the raters. Raters were also not told what population the FSAs were conducted on, nor were they told

the participants' age. The purpose of presenting only the FSA drawings to the raters was to reduce bias that could have swayed scores on the FEATS.

When the study commenced, all study documents were returned to the participant.

Data Analysis

The data collected from the categorical 0–5 Likert-type scales were organized into tables and observation forms were described through a narrative format.

Risk and Benefit Analysis

There were minimal risks associated with this study. Potential risk factors included the possible loss of confidentiality and risk of being uncomfortable answering questions on the participant inquiry form. To minimize the potential risk of loss of confidentiality, each participant was provided a unique ID number that was used for all study documents, and names were not connected to identifying information collected such as age range, gender, and dementia stage diagnosis. Participants were permitted to skip any questions in the FSA participant inquiry form that they felt uncomfortable answering. There was no expectation among participants of immediate or long-term benefits from participating in the study. However, it is hoped participation in the study will aid in advancing research for the FSA and the field of art therapy.

CHAPTER IV

RESULTS

The study anticipated six participants, but only one participant was recruited in the four-week time slot for FSA data collection. Due to the COVID-19 pandemic, recruitment of participants was reduced to three weeks to meet social-distancing mandates. The inclusion and exclusion criteria restricted potential participants due to a limited number of individuals with a diagnosis of early-stage dementia. This section will report the data collected on the participant's demographics and diagnosis, the FSA's modified FEATS results, the FSA participant inquiry form, and the additional FSA observation form.

This study assessed whether older adults diagnosed with early-stage dementia had the ability to finish the FSA, whether the FSA would need to be adjusted to be used with this population, and whether there were any consistencies in FEATS variable scores. Generalizing the results and recommendations with regard to the appropriateness of the FSA for participants with an early-stage dementia diagnosis is not possible due to the case-study format. However, the one participant (Participant 1) was able to complete the FSA and research protocols.

Instead of rating only the second stimulus drawing, all three drawings were rated in Participant 1's FSA. The purpose of rating all three was to observe the potential for changes to the average score as the FSA stimulus drawings progressed with less structure. This decision was made to increase the amount of data reviewed. Additionally, scoring all three drawing for individuals with a dementia diagnoses may provide a wider variety of understanding of client functioning over time.

Participant Demographics

Participant 1 was an 88-year old non-Hispanic/Latina female. Her diagnosis of early-stage dementia by a geriatrician was based on the following examinations: physical exam, functional screening, interview with patient and caregivers, neuropsychological testing, Geriatric Depression Scale (GDS) test, and Geriatric Anxiety Disorder 7 (GAD-7) test. Geriatrician interviews included self-reports and participant caregiver reports that noted the following concerns: decreased problem-solving skills, decreased self-care skills, wanting to stay home, short-term memory loss, difficulty with sequencing and numbers, behavior changes (for example, being in a "pissy" mood), depressed mood, difficulty with finding words, and memory lapses.

FSA Modified FEATS

The FSA modified FEATS was rated by three practicing registered board-certified art therapists. One rater was able to meet in person to rate the FSA. The other two met via Zoom due to COVID-19 social-distancing regulations and safety precautions during the time of data collection. Deidentified FSA drawings were shared via screen share on Zoom and rater results were shared on a cloud-based storage software that requires two-step verification for entry. *Tables 1–3* organized the raters' scores from all three stimulus drawings and include the average of each score.

Table 1 shows the FEATS variable scores for drawing 1. Stimulus drawing 1 consisted of the pre-drawn outline of the head, shoulders, eyes, nose, mouth, ears, and eyebrows. *Figure 1* shows FSA drawing 1 completed by Participant 1.

Table 1

Drawing 1 FSA modified FEATS scores

FEATS Variable	Rater 1	Rater 2	Rater 3	Average
Prominence of Color	2	2.5	2	2.2
Color Fit	5	5	5	5
Implied Energy	2.5	2.5	3	2.7
Logic	4	5	4.5	4.5
Realism	3.5	4	3.5	3.7
Developmental Level	4	4	4	4
Details of Objects & Environment	3	2	3	2.7
Line Quality	3	3	3	3
Perseveration	4	4	4.5	4.2

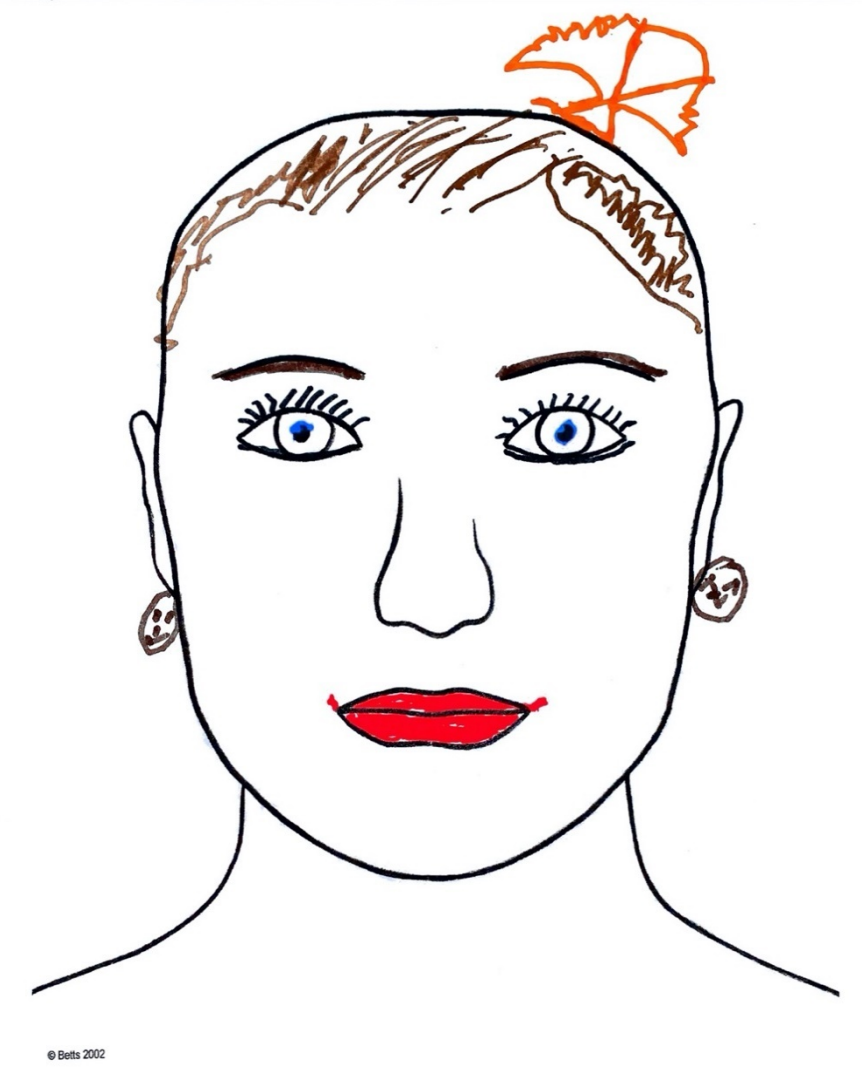

Figure 1. FSA drawing 1 by Participant 1.

Table 2 shows the FEATS variable scores for drawing 2 in the FSA. In the FSA manual, drawing 2 is the only drawing rated using the modified FEATS because it provides the least amount of stimulus imagery. *Figure 2* shows FSA drawing 2 completed by Participant 1.

Table 2

Drawing 2 FSA modified FEATS scores

FEATS Variable	Rater 1	Rater 2	Rater 3	Average
Prominence of Color	2	2	1	1.7
Color Fit	4	5	3.5	4.2
Implied Energy	3	3	3	3
Logic	4.5	4.5	4.5	4.5
Realism	3.5	3	3.5	3.3
Developmental Level	4	3.5	3	3.5
Details of Objects & Environment	3	3	3.5	3.2
Line Quality	2	2	3	2.3
Perseveration	3	4.5	4	3.8

Figure 2. FSA drawing 2 by Participant 1.

Table 3
Drawing 3 FSA modified FEATS scores

FEATS Variable	Rater 1	Rater 2	Rater 3	Average
Prominence of Color	1	1	1	1
Color Fit	4	5	3.5	4.2
Implied Energy	3	3	3	3
Logic	5	5	4.5	4.8
Realism	4	3.5	2.5	3.3
Developmental Level	3	2.5	3	2.8
Details of Objects & Environment	2	2.5	4	2.8
Line Quality	2.5	4	3.5	3.3
Perseveration	4	5	4.5	4.5

Table 3 shows FEATS variable scores collected by the three raters for drawing 3. In the FSA, drawing 3 is presented as a blank sheet of paper. As stated, the third drawing is given to participants to see if they have the ability to draw or attempt to draw a face after the two previous stimulus drawings. *Figure 3* shows FSA drawing 3 completed by Participant 1.

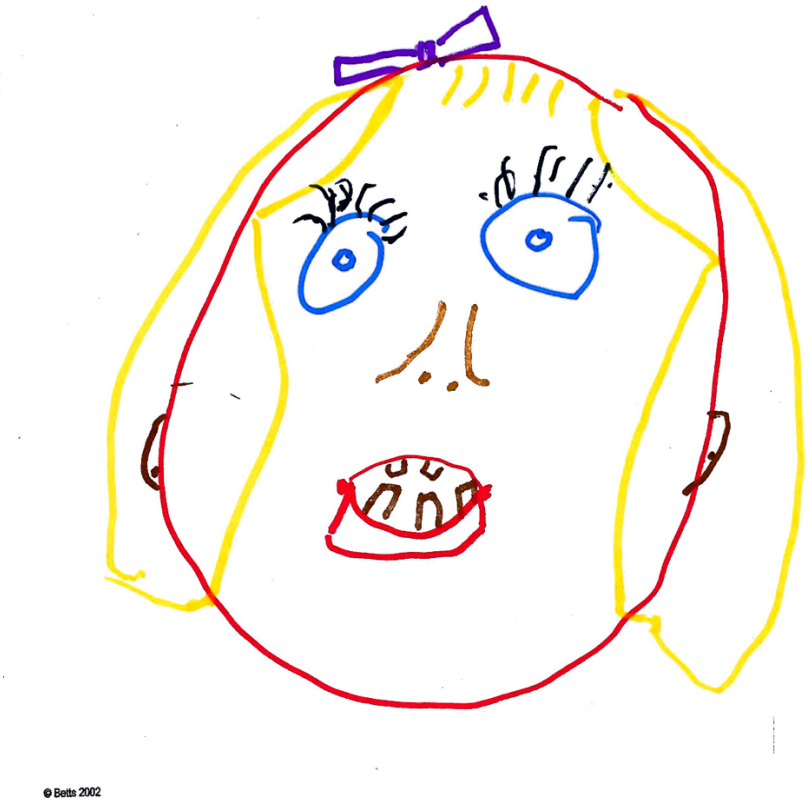

Figure 3. FSA drawing 3 by Participant 1.

Table 4 shows the average scores of all three drawings.

Table 4

Average FEATS scores from drawing 1, drawing 2, and drawing 3

FEATS Variable	Drawing 1	Drawing 2	Drawing 3
Prominence of Color	2.2	1.7	1
Color Fit	5	4.2	4.2
Implied Energy	2.7	3	3
Logic	4.5	4.5	4.8
Realism	3.7	3.3	3.3
Developmental Level	4	3.5	2.8
Details of Objects & Environment	2.7	3.2	2.8
Line Quality	3	2.3	3.3
Perseveration	4.2	3.8	4.5

Interrater Reliability

A reliability analysis of the rater's scores was carried out on the FEATS variables gathered from Participant 1's FSA. Interrater reliability was high with all three raters. Cronbach's alpha showed the interrater reliability to be acceptable at $\alpha = .962$. To further support the claim of acceptable consistency of FEATS variable scores between raters, *Table 5* shows the inter-item correlation of each rater to be at least .869. A significant relationship was found between rater scores and outcome of the FEATS variable $F(1,8) = 25.98$, $p = .000$. Descriptive statistics found a mean value of 10.61 with a standard deviation of 2.88, ($M=10.61$, $SD=2.88$), with a 95% correlational index (CI) of [.709, .972].

Table 5
Inter-item Correlation Matrix

	Rater 1	Rater 2	Rater 3
Rater 1	1.000	.869	.966
Rater 2	.869	1.000	.878
Rater 3	.966	.878	1.000

FSA Participant Inquiry Form

The FSA participant inquiry form prompts the researcher to ask designed questions about each drawing after it has been completed.

Drawing 1. This drawing is shown in *Figure 1*. When Participant 1 was asked how important it was for her to color inside the lines, she replied, "I didn't pay any attention." When asked to talk about the colors used for the face, she stated that she couldn't find any color that was "acceptable" for flesh tones, so she just ignored it. When asked to elaborate on the added elements of the drawing, she stated that the drawing was of a Japanese geisha and that the pin on her head was "a sign of the house where she lives." When asked if the drawing was of a person she knew, she stated, "Nope, I just made her up." She said she would title the drawing *Obi*, which is a sash/garment that geisha's wear. When asked if there was anything else she would like to add, she said, "I could make up lots of stories about the image, she smiles a lot."

Drawing 2. This drawing is shown in *Figure 2*. When Participant 1 was asked to talk about the colors used for the face, she stated, "I highlighted everything but the face color—it wasn't important to me. This is Lucy with a runny nose. Her eyes are cockeyed, and her mouth is a little off." The researcher asked about other elements in the drawing to gain insight into the nose to determine if it was a runny nose or nosebleed. Participant 1 stated, "She has sinus problems. I would have drawn a Kleenex if hands were there. I would have her in mind for

casting a show for Lucy." When the researcher asked if she knew the person in the drawing, she elaborated that this was a drawing of Lucy from the "Charlie Brown" cartoon. She said she would title the drawing *Rats*, which is a common phrase said in the cartoon. Finally, the researcher asked whether the participant would like to add any additional comments. Participant 1 stated, "I like her…and that's it."

Drawing 3. This drawing is shown in *Figure 3.* When Participant 1 was asked to talk about the colors used for the face, she stated, "I started to draw a clown, but it didn't look right. So, I gave her blonde hair and a purple bow. Her ears are hardly showing because of her blonde hair. That is how it turned out. I messed up her mouth, but maybe she's someone yelling out." When asked about the additional elements in the drawing, such as the purple bow, Participant 1 stated, "the purple bow is for Northwestern University." Participant 1 stated this drawing was "pure imagination." When asked what she would title the drawing, she said, "I might title it, *My Sweet Great-Granddaughter*." When asked if there was anything more she would like to add, she said, "She's a real sweetheart with a big mouth, wide eyes, and a bow in her hair."

Additional FSA Observation Form

The additional FSA observation form (Appendix C) recorded data relating to the following: completion time for three stimulus drawings, participant capability, redirection prompts, observations of motor functioning, and observations of any other notable verbalizations or behaviors during the assessment.

Completion. The participant was able to complete the FSA within the 60-minute time frame. Participant 1 completed the FSA in 24 minutes.

Redirection. Participant 1 did not need redirection and did not need to have directions repeated during each drawing.

Motor functioning. Participant 1 was able to hold the markers and did not need grip assistance (foam tubes on markers). However, Participant 1 did need assistance with taking the caps off of the markers. Regarding fine motor skills, the participant was able to make small and/or detailed marks on the page. As for gross motor functioning, Participant 1 was able to make large and/or concise marks on the page. No additional motor functioning observations were noted.

Notable verbalizations and behaviors. Verbalizations made by Participant 1 while the FSA was administered, and the participant inquiry form was filled out did match what was drawn on all three stimulus drawings. Drawing 2 elicited changes in behavior as Participant 1 became frustrated when drawing the hair. Participant 1 also laughed and verbalized, “Well you’re no fun, are ya?” when presented with the blank page for drawing 3. No additional verbalizations and/or behaviors were noted.

CHAPTER V

DISCUSSION

Self-portraits and depictions of others have existed in human culture since the development of the conscious self (National Geographic, 2018), coinciding with facial and emotional recognition. This is exemplified by works of art ranging from 52,000-year-old cave drawings (National Geographic, 2018) depicting human figures (the first known signs of human creativity), to Egyptian tomb paintings, to portraits by artistic greats like Rembrandt and Frida Kahlo, to the modern-day selfie.

Betts (2003) describes elements of physical appearance and facial features as "powerful determinants of how one perceives oneself and others" (p. 78). Betts was intentional in her reasoning for using a face as the stimulus image in her art-based assessment due to its relationship to cognitive functioning. There are benefits to using a face as a stimulus image rather than having subjects draw a clock or copy shapes because images of faces elicit strong reactions and motivations.

Humans have the instinctual ability to recognize faces and read emotions from a very early age. Newborns who are just 8 hours old can recognize faces (Walton & Bower, 1993) and children can perceptually encode faces to the same degree as adults by age 5 (McKone, Crookes, Jeffery, & Dilks, 2012). Betts (2003) found that the individuals she worked with who had communication difficulties responded best to a stimulus image of a face and could project their own ideas onto the page—even if it was just scribbling. Additionally, the face stimulus could reveal information and focus on their strengths instead of their disabilities (Betts, 2003).

The FSA has the ability to fill the gaps of other traditional methods of cognitive assessment for dementia such as the MMSE, MoCA, and CDT due to its use of the FEATS.

Although there are drawing components to the MoCA and the CDT, they do not specifically assess how drawings are done, but rather whether they are completed with specified accuracy. The modified FEATS supersedes scoring of the CDT because it evaluates nine specific variables that pertain to how something is drawn rather than whether a subject had the ability to complete the drawing. With more research on the FEATS with individuals with a dementia diagnosis, there is the potential of identifying specific graphic indicators that align with the various stages of the disease. The FEATS may also have the ability to track the progression of the disease through its potential use of graphic indicators of dementia and observational changes in these elements as the brain deteriorates. Stewart (2004) found that the FEATS was effective when used with individuals diagnosed with dementia—specifically for tracking progression, regression, graphic indicators, and general problem solving and cognitive ability. Additionally, the FSA and the FEATS can potentially be used with individuals who experience delays or challenges with literacy or verbal articulation. Gantt (2016) stated:

> Perhaps the greatest advantage (when using the FEATS) is that information is captured even if a person has trouble with traditional verbal interviews. What may be most apparent are psychotic symptoms and organic disorders. In this regard, the FEATS may reveal more than the Mini-Mental Status Exam (MMSE) (p. 573).

Due to language impairments in the early stage of AD (Ferris & Farlow, 2013) and to difficulty producing and/or comprehending language with FTD (Fymat, 2018), a person might be able to cognitively perform better on a stimulus image drawing than recall- or language-based assessments like the MMSE and MoCA.

Even so, there is limited accuracy on interrater reliability with clinicians using the CDT (Price et al., 2011). According to Price et al. (2011), reliability should be a primary consideration

when employing cognitive assessments; without this data, it is difficult to accurately follow longitudinal changes in a patient's decline. In the case of this study, the FSA and its use of the FEATS had statistically significant reliable outcomes in scores from all three raters, with α = .962. This supports the FSA's potential to accurately follow longitudinal changes in patients with dementia.

Due to the lack of participants in this study, results cannot be easily generalized to larger populations; therefore, it is difficult to determine whether the FSA could be effectively used with individuals diagnosed with early-stage dementia. However, Participant 1 successfully completed the FSA in the allotted 60-minute time frame, completed the participant inquiry form, and demonstrated limited difficulty with the variables addressed on the additional FSA observation form. This shows promise in the FSA's ability to help practitioners track the progression of dementia in their patients.

Modified FEATS Analysis

Color fit, logic, and perseveration. The variables with highest average scores for all three drawings were color fit, logic, and perseveration. Color fit assesses whether colors are appropriate to what was drawn, logic shows impairments in abstract thinking, and perseveration shows unawareness of repetition in elements or line quality (Gantt & Tabone, 1998). Research states that perseveration and impairments in abstract thinking are consistent with symptoms of a dementia diagnosis (Gantt & Tabone, 1998; Kahn-Denis, 1997; University of California, San Francisco: Memory and Aging Center [UCSF], 2020). However, there are no specific criteria on how this presents in each stage.

There are a few inconsistencies when analyzing color fit scores and symptomology of dementia, specifically with regard to visuospatial functioning in an early-stage dementia

diagnosis and difficulty in deciphering color (Quental et al., 2013). Participant 1's color fit score was highly rated by all three raters; however, Participant 1 stated in the participant inquiry form that there was no marker she found to be "appropriate" for skin tone even though Participant 1 was presented with a pack of multicultural markers.

Participant 1 scored high on color fit, logic, and perseveration, demonstrating that there were few concrete indicators present for those variables. However, as a dementia diagnosis progresses, perseveration could present itself in drawings as the repetition of shapes and lines that are not intentional as well as in excessive repetitive pressure applied to the page with the markers resulting in the marker bleeding through the page and/or holes in the page. These graphic indications would be consistent with repetitive and compulsive symptoms of a middle-stage diagnosis (Alzheimer's Association, 2018b; Reisberg et al., 1982). Graphic indicators of logic may present as drawing imagery not consistent with the stimulus of a face or using drawing 3 to draw something unrelated to a face. This would be representative of a further decline in abstract thinking indicative of the progression of an AD diagnosis (Quental et al., 2013). Specifically, for progression of an AD diagnosis, graphic indications of decline could include the use of colors that are not considered appropriate for what is being drawn. For example, an individual might use purple or green to color in the face or use only one color to complete the whole drawing. This can be a graphic indicator in AD symptomology of not being able to discriminate from different colors (Quental et al., 2013).

Prominence of color. The component with the lowest average score for all three drawings was prominence of color. Out of all three drawings, the only elements that were fully colored in were the lips on drawing 1 (see *Figure 1*) and the pupils on drawings 1 and 2 (see *Figures 1 and 2*). The majority of all three drawings consist of single drawn lines, with no shapes

or spaces fully colored in. This finding is consistent with the literature and matches common characteristics of artwork by those diagnosed with dementia such as the use of a restricted color palette (Mendez, 2004; Palmiero et al., 2012; Safar & Press, 2011). Individuals who have symptoms of depression tend to use less color in their artwork as it is thought to be directly related to affect; this is also consistent with the literature (Gantt & Tabone, 1998). The lack of filled-in shapes and spaces in all three drawings could be indicative of the common characteristics in dementia artwork and depressive moods associated with Participant 1's diagnosis.

Developmental level, details of objects and environment, and realism. Participant 1's average score for drawing 3 in developmental level was 2.8 (see *Table 4*). Upon observation, Participant 1's drawing could be consistent with Lowenfeld's preschematic stage, but cusping the schematic stage. Drawings of human figures in the late preschematic stage include elements of hair and other details. In addition, body parts may be distorted or omitted, the human figure is looking at the viewer, and objects seem to float in the page (Lowenfeld & Brittain, 1987). Drawings in the schematic stage show baselines or representations of the ground or environment. Also, proportions depend on emotional values, arms and legs show volume and are correctly placed, there is an organization of 2D objects, and objects are bold and flat. Finally, subjective representation of space is common, as with X-ray drawings (Lowenfeld & Brittain, 1987). (An *X-ray drawing* is one in which both the outside and the inside of an object is visible (Lowenfeld & Brittain, 1987)—i.e., in *Figure 3*, the outline of the head can be seen under the outline of the hair.) In drawing 3 (see *Figure 3*), preschematic representation is found in the following components: the detail in the hair, eyelashes, and bow; the omission of the neck and shoulders; the figure appearing to float in space; and the fact that the figure is looking at the viewer.

Representation of the schematic stage can also be seen through the image's boldness, flatness, and subjective space representation (specifically, in the way the lines that represent the sides of the face are seen underneath the hair or with an x-ray drawing style). However, it does not meet all the requirements to be classified solely as a schematic drawing because the image has no baselines or indications of the ground or environment.

It is important to note that Lowenfeld's artistic developmental levels were designed to assess the development of children and adolescents; however, when most adults are asked to draw, they typically fall in the pseudo-naturalistic stage. This is because the age of 12 marks the end of artistic development (Lowenfeld & Brittain, 1987). Participant 1's artistic developmental level is below the average adult. This could be indicative of either her dementia diagnosis and the deterioration of her brain or a failure to develop the skills needed to draw at the pseudo-naturalistic stage during the course of her lifetime.

Although Participant 1 did not include an environment in all three drawings, there are additional details added to the faces. Drawing 2 (see *Figure 2*) has the highest average score with the most additional details added. In drawing 3 (see *Figure 3*), Participant 1 was capable of drawing a face; however, the shoulders and neck were omitted. According to Gantt and Tabone (1998) omission of objects and the environment is suggestive not only of depression but also of organic mental disorders such as dementia—both of which line up with Participant 1's symptomology. The lack of environment in all three drawings could be indicative of the decline in visuospatial functioning and awareness common with an AD diagnosis (Quental et al., 2013).

Looking to future research, conducting a baseline FSA assessment before an individual develops and is diagnosed with dementia may make this variable more effective. Additionally, keeping in mind that Lowenfeld developed the five stages of artistic development based on the

artistic developmental levels of children, it might be possible to develop a distinct body of FSA artwork to determine whether there are consistent developmental changes in drawings as the dementia disease progresses. Essentially, it may be possible to replace this FEATS developmental variable with one more fitting for this population. Until there is an artistic developmental level that tailors more to this specific population, the use of this variable in rating the FSA might not be necessary.

Realism assesses how realistic and representational the elements in a drawing are. Gantt and Tabone (1998) state that most individuals with an AD diagnosis draw unrecognizable pictures. Because Participant 1's drawings *are* recognizable, this variable could potentially be valuable in tracking the progression of the disease. Participant 1's drawings did not appear to have any shading, which is a key element of realism, but they were still recognizable as faces. As a dementia diagnosis progresses, realism will decline as drawings begin to look flat and fragmented (Gantt & Tabone, 1998), which could be directly correlated with the decline in spatial orientation consistent with a middle- to late-stage dementia diagnosis (Reisberg et al., 1982).

Line quality and implied energy. Line quality corresponds with how much control an individual has while creating the drawing. In drawing 3 (see *Figure 4*), the black circles show where lines are disconnected—that is, where a gap exists between where a shape started and where it finished. Broken lines, disconnections between lines, and unclosed shapes can be defined as *organic gaps*, as they appear in drawings made by individuals with organic disorders such as dementia (Gantt & Tabone, 1998). Line quality could be a direct correlation with motor functioning, as motor functioning declines with a dementia diagnosis (Alzheimer's Association,

2018a; Alzheimer's Association, 2018b; Denis-Kahn, 1997; Fymat, 2018; Reisberg et al., 1982). Graphic indicators of decline could present in lines as fragmentation, non-fluidity, and rigidness.

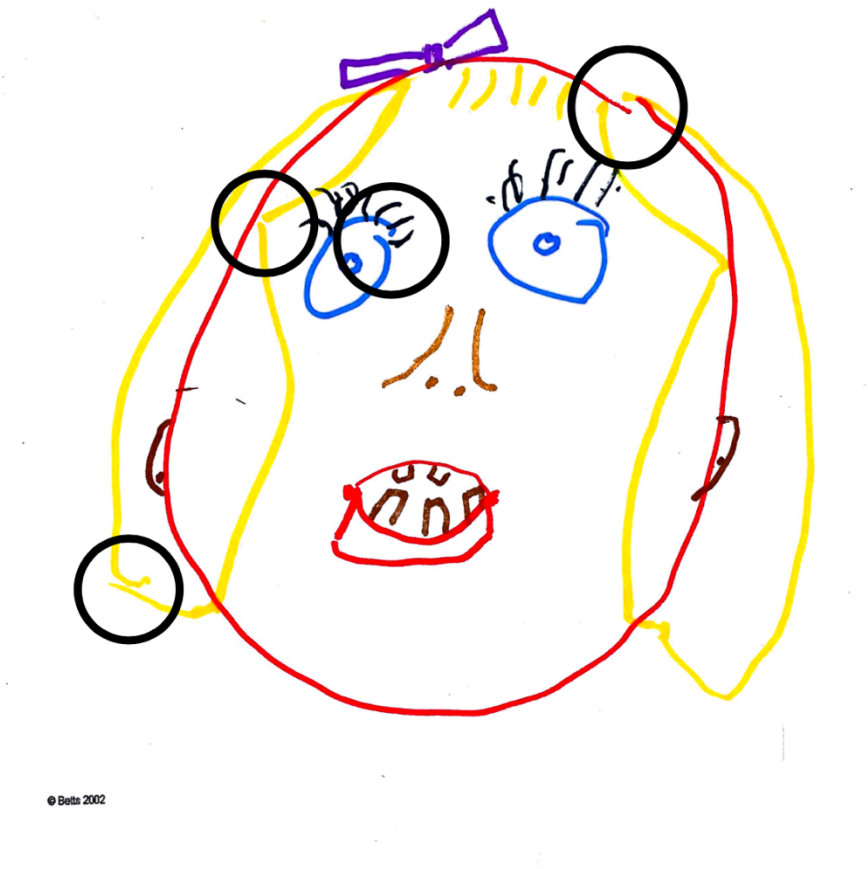

Figure 4. FSA drawing 3 by Participant 1 showing organic gaps in lines and shapes.

Implied energy attempts to rate the amount of effort and energy the individual expended to create the drawing. This is determined by pressure, movement, and level of detail. Participant 1 scored a 2.7 for drawing 1, a 3 for drawing 2, and a 3 for drawing 3. A rating of 3 on the Likert scale is considered an average amount of energy (Betts, 2013b). Participant 1 showed an increase in implied energy over the progression of the assessment as the stimulus drawings became more

independent. This could be indicative of needing to exert more energy as the stimulus images became less structured.

Identifying specific graphic indicators for each variable present in each stage of dementia will require further research on larger scales. The graphic indicators presented here are only predictions of what *might* correlate with symptoms of each stage and type of dementia presented in the literature. Graphic indicators would not be used as a way to diagnose dementia, but instead could help art therapists and other practitioners pinpoint specific graphic elements as symptom equivalents. Graphic indicators might also provide additional information about an individual's cognitive performance because these indicators do not rely on verbal or language processing. Not only that, but art therapists could use these identified graphic indicators in artwork apart from the FSA to further assess and evaluate patients in geriatric facilities to better tailor art interventions and directives to best suit their needs.

Additional FEATS scales that could be used with this population might include variables like space, integration, and person. Space allows for an analysis of an individual's ability to fill the drawing. It would be interesting to see whether in drawing 3, the space used to draw the face is consistent in size with the previous stimulus drawings or if the face is drawn smaller or larger. Integration allows for the analysis of abstract thinking in organization, spatial relationships of elements in the artwork, disintegration, and fragmentation, which are distributed in dementia (Gantt & Tabone, 1998). Finally, drawing a full person may be beneficial because according to Gantt and Tabone (1998), "misplaced body parts, shrunken arms and legs, and distorted parts other than head or extremities" (p. 41) are indicators of brain damage and organic deterioration. This can be seen in drawing 3 (see *Figure 3*) with the omission of the neck and shoulders.

Participant Inquiry Form Analysis

Participant 1 was able to answer all questions provided in the participant inquiry form. However, two answers required clarification from Participant 1. The first related to the red mark below the nose in drawing 2 (see *Figure 2*). Participant 1 clarified it as a nosebleed and explained that the person in the drawing had sinus issues. The second related to drawing 3. Participant 1 first stated that the person in the drawing came from her imagination; however, she titled the drawing *My Sweet Great Granddaughter*. Participant 1 stated that she was unable to recall her great-granddaughter's name. This could be indicative of short-term memory loss associated with an early-stage dementia diagnosis. However, it could also be that she decided the drawing looked like her great-granddaughter during that time frame and did not elaborate further.

This additional data form is beneficial for understanding and providing context for the FSA drawings. Currently, the participant inquiry form is not used as a tool to assist in rating the FSA drawings. It might be beneficial to see answers to the participant inquiry form when rating the logic variable (e.g. when specifically looking at bizarre objects in the drawings) for clarification and context.

Betts (2013b) provides an FSA systematic observation guideline form if an individual has difficulty with verbal communication and is unable to answer questions for the participant inquiry form.

Additional FSA Observation Form Analysis

According to information entered into the additional FSA observation form, Participant 1 did not need redirection or directions of the assessment reiterated. She was able to hold the markers without foam grips and demonstrated mastery in fine and gross motor skills to render the images. Finally, her verbalizations during the assessment matched what was being drawn.

The use of this form would support tracking disease progression because it is likely that there could be a decline in visuospatial functioning (i.e. fine and gross motor skills) and short-term memory (requiring redirection and repetition of directions) as well as changes in mood (that is, notable changes in behavior and verbalizations) (Alzheimer's Association, 2018a; 2018b; Denis-Kahn (1997) Fymat, 2018; Reisberg et al., 1982). Additional research is needed to check the form's reliability with all stages of dementia.

Limitations

A key limitation to the FSA and the modified FEATS is that they limit the assessment's transferability to other professions. Primarily because of the language and knowledge used to rate the FEATS, doctors, geriatricians, and researchers without a background in formal elements or formal analysis may yield contrasting results on the Likert-type scales.

When looking critically at the FEATS and its ability to rate imagery based on DSM III criteria, many variables from Participant 1's FSA drawing are consistent. However, as the DSM continues to evolve, it is necessary to reevaluate and update the FEATS to align with current diagnostic materials.

Another limitation is the lack of current research on the FSA and art therapy–based assessments of dementia populations. Developing a body of FSA artwork with older adults diagnosed with early-, middle-, and late-stage dementia would be beneficial to the validity and reliability of this assessment as a tool to track the progression of dementia. This would provide more specific data on graphic elements or indicators to look for with those diagnosed with dementia. Additionally, it would provide insight into the modifications needed to the FEATS manual to capture developmental level and color use with older adults diagnosed with dementia.

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

This study is the tip of the iceberg with regard to how the FSA could assess and track the progression of dementia. Dementia is a complex and diverse disease that manifests in many different ways and with an array of symptoms. It would be best addressed using a multidisciplinary approach that affords providers with a wide variety of perspectives on the symptomology and progression of the illness. An integrated approach to research on the assessment, treatment, and progression of dementia could provide a deeper understanding of the diagnosis and better treatment outcomes.

Although the study did not recruit six participants, the case study yielded rich information pertaining to the potential for the FSA to be used with those diagnosed with dementia. According to the data collected from this case study, Participant 1 was able to successfully complete the FSA and FSA participant inquiry form. A review of the literature resulted in valuable and validating data regarding graphic indicators and dementia, as well as data on the potential for the FSA to be used as an assessment to track the progression of dementia. The FSA additional observation form requires additional study in middle- to late-stage diagnoses to determine whether it is a tool that can be applicable for tracking.

Recommendations

Participant 1's scores from all three drawings show that even with an early-stage dementia diagnosis, the FSA could be a good baseline assessment for tracking progression. However, to improve the validity and reliability of this assessment with this population, a few suggestions for further research are presented here.

One is to develop in larger-scale studies with the FSA and those diagnosed with dementia, as well as normative studies with older adults not diagnosed with dementia. Another is to design progression studies with the use of the FSA with individuals as they progress through a dementia diagnosis, including the use of the FSA with specific dementia types, to see if specific graphic indicators are present with different dementia diagnoses. A third is to develop comparison studies on the use of the FSA compared to the MMSE, MoCA, and CDT. Research may benefit from seeing correlational studies of the MMSE and the FSA because of language impairments in early-stage dementia (Ferris & Farlow, 2013); it would be interesting to see if individuals perform better on the FSA or the MMSE. The development of research for the FSA with individuals diagnosed with dementia could even provide a body of artwork to cultivate an artistic developmental level system that is more effective than Lowenfeld's developmental stages.

In conclusion, there is opportunity for valuable research to be conducted on the FSA and the modified FEATS as a tool for tracking progression of dementia. There is also ample opportunity to enhance the definition of common graphic indicators and elements of dementia artwork on a much larger scale. It is important to note that although this study suggests that the FSA is deemed suitable for further research with dementia patients, the FSA would not be used as a tool for diagnosing dementia. Rather, it would be used to help differentiate symptoms that other cognitive assessments may overlook because its foundations are rooted in stimulus imagery and not language.

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APPENDIX A

IU INFORMED CONSENT

INDIANA UNIVERSITY INFORMED CONSENT STATEMENT FOR RESEARCH

The use of the Face Stimulus Assessment (FSA) with Early-Stage Dementia
IUPUI 2001848206

ABOUT THIS RESEARCH
You are being asked to participate in an art therapy-based research study. Art therapists do research to answer important questions which might help change or improve the way we do things in the future.

This consent form will give you information about the study to help you decide whether you want to participate. Please read this form, and ask any questions you have, before agreeing to be in the study.

TAKING PART IN THIS STUDY IS VOLUNTARY
Research participation is voluntary, and you may withdraw from the study at any time. Deciding to participate or to leave the study will not result in any penalty or loss of benefits to which you are entitled and will not affect your relationship with Ascension St. Vincent Center for Healthy Aging or Indiana University.

WHY IS THIS STUDY BEING DONE?
The purpose of this study is to find out if an art-based cognitive assessment called the Face Stimulus Assessment (FSA) can be used to identify symptoms of early-stage dementia

You were selected as a possible participant because you are currently a patient at Ascension St. Vincent's Center for Health Aging and have a diagnosis of early-stage dementia.

The study is being conducted by Ashleigh Mower, art therapy graduate student at Herron School of Art and Design at IUPUI. Eileen Misluk, Assistant Professor at Herron School of Art and Design, IUPUI in the Master of Art in Art Therapy Program will oversee the research study.

HOW MANY PEOPLE WILL TAKE PART?
If you agree to participate, you will be one of six patients at Ascension St. Vincent's Center for Healthy Aging in this study.

WHAT WILL HAPPEN DURING THE STUDY?

If you agree to be in the study, you will do the following things:

- Meet to review the informed consent forms and be given the opportunity to ask any questions or concerns they may have about participating in the study.
- Complete the Face Stimulus Assessment and the Face Stimulus Participant Inquiry Form within the 90-minute allotted time.
- All sessions will be held in a private room at the Center for Healthy Aging.
- The study will begin in January and commence in April.

WHAT ARE THE RISKS OF TAKING PART IN THE STUDY?

There are minimal risks associated with this study. A potential risk of being in the study would be a risk of possible loss of confidentiality. Additionally, there is a potential risk of being uncomfortable answering questions in the inquiry form.

To minimize the potential risk of loss of confidentiality, each participant will be provided a unique ID number that will be used for all study documents and names will not be connected to identifying information collected such as age range, gender, and dementia stage diagnosis. Participants are able to skip any questions in the inquiry form that they are uncomfortable answering.

Participants will be required to have a Legally Authorized Representative (LAR) present for consent review.

WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THE STUDY?

We don't expect you to receive any benefit from taking part in this study, but we hope to learn things which will help art therapists in the future such as; advancing research for the Face Stimulus Assessment, and the field of art therapy.

WILL I RECEIVE MY RESULTS?

We may learn things about you from the study activities which could be important to your health or to your treatment. If this happens, you can decide whether you want this information to be provided to you. If you decide that you want this information, you may need to meet with professionals with expertise to help you learn more about your research results. The study team/study will not cover the costs of any follow-up consultations or actions. Please initial one of the following options:

_____ Yes, I want to be provided with this information.

_____ No, I do NOT want to be provided with this information.

Assessments will be kept in the possession of the researcher/ research committee until the commence of the study. Once the study has commenced you will have the option to be given the physical copies of your assessment.

HOW WILL MY INFORMATION BE PROTECTED?

Efforts will be made to keep your personal information confidential. We cannot guarantee absolute confidentiality. Your personal information may be disclosed if required by law. No information which could identify you will be shared in publications about this study nor will databases in which results may be stored. The researcher will maintain confidentiality of the participants by assigning unique identification numbers on the data collection. A Digital copy of your Face Stimulus Assessment will be held on a password protected computer and the hardcopies of the images will be secured by the art therapy program for educational materials.

Organizations that may inspect and/or copy your research records for quality assurance and data analysis include groups such as the study investigator and her research associates, the Indiana University Institutional Review Board or its designees, Ascension St. Vincent Institutional Review Board or its designees, the study sponsor Herron School of Art and Design, and Indiana University Purdue University of Indianapolis faculty.

WILL I BE PAID FOR PARTICIPATION?

You will not be paid for participating in this study.

WILL IT COST ME ANYTHING TO PARTICIPATE?

There is no cost to you for taking part in this study.

WHAT FINANCIAL INTEREST DOES THE RESEARCHER HAVE?

There is no financial interest to the researcher. This study is being completed for a master's level thesis.

WHO SHOULD I CALL WITH QUESTIONS OR PROBLEMS?

For questions about the study contact the researcher, Ashleigh Mower, at 317-529-4842 and/or amower@iu.edu and/or Eileen Misluk at 317-278-9460 or emisluk@iupui.edu

For questions about your rights as a research participant, to discuss problems, complaints, or concerns about a research study, or to obtain information or to offer input, please contact the IU Human Subjects Office at 800-696-2949 or at irb@iu.edu.

WILL I BE CONTACTED ABOUT RESEARCH IN THE FUTURE?

Information collected from you for this research may be used for future research studies or shared with other researchers for future research. If this happens, information which could identify you will be removed before any information is shared. Since identifying information will be removed, we cannot ask for your additional consent.

CAN I WITHDRAW FROM THE STUDY?

If you decide to participate in this study, you can change your mind and decide to leave the study at any time in the future. The study team will help you withdraw from the study safely. If you decide to withdraw, tell the researcher and you will be removed from future survey collection procedures.

CONSENT

In consideration of all of the above, I give my consent to participate in this research study. I will be given a copy of this informed consent document to keep for my records. I agree to take part in this study.

Participant's Printed Name:_____

Participant's Signature:_____ **Date**:_____

Printed Name of Consenter/LAR:

_____

Signature of Consenter/LAR:_____ **Date:**_____

Printed Name of Student Researcher:_____

Signature of Student Researcher:_____ **Date**:_____

Printed Name of Principle Investigator:_____

Signature of Principle Investigator:_____ **Date**:_____

APPENDIX B

ASCENSION ST. VINCENT INFORMED CONSENT

St.Vincent | ASCENSION

Institutional Review Board

AGREEMENT TO PARTICIPATE IN A RESEARCH STUDY
MEDICAL RESEARCH INFORMED CONSENT

Title of research study: The use of the Face Stimulus Assessment (FSA) with an early stage dementia diagnosis

Investigator: Kaitlin Knapp, MA, ATR-P, LMHCA

Co-Investigators: Ashleigh Mower, IUPUI master's in art therapy student and Eileen Misluk ATR-BC, LPC, LMHC, CEDCAT, Assistant Professor at Herron School of Art and Design.

PARTICIPANT NAME _____

Key Information: The following is a short summary of this study to help you decide whether or not to be a part of this study. More detailed information is listed later on in this form.

Why am I being invited to take part in a research study?

We invite you to take part in a research study because you have a diagnosis of early stage dementia.

What should I know about a research study?

- Someone will explain this research study to you.
- Whether or not you take part is up to you.
- You can choose not to take part.
- You can agree to take part and later change your mind.
- Your decision will not be held against you.
- You can ask all the questions you want before you decide.

Why is this research being done?

This research is being done to see if, eventually, the FSA could be used as an additional tool to help track the progression of a dementia diagnosis.

How long will the research last and what will I need to do?

We expect that you will be in this research study up until April 30th, 2020.

You will be asked to participate in a FSA and questionnaire after the FSA completion. The FSA consists of three drawings. The three drawings will be given without detailed instructions, you will only be asked to, "use these markers and this piece of paper." The questionnaire after the FSA will relate to the drawings you drew in the assessment.

More detailed information about the study procedures can be found under ***"What happens if I say yes, I want to be in this research?"***

Is there any way being in this study could be bad for me?

This is a low risk study. Possible risks of the study include; loss of confidentiality and risk of being uncomfortable answering the inquiry form questions.

More detailed information about the risks of this study can be found under ***"Is there any way being in this study could be bad for me? (Detailed Risks)"***

Will being in this study help me in any way?

There are no benefits to you from your taking part in this research. We cannot promise any benefits to others from your taking part in this research. However, possible benefits to others include advancing research for the Face Stimulus Assessment, and the field of art therapy. As well as creating evidence for further research of the FSA to be used as an assessment tool to track the progression of dementia.

What happens if I do not want to be in this research?

Participation in research is completely voluntary. You can decide to participate or not to participate.

Your alternative to participating in this research study is to not participate.

Why is this research being done?

This research is being done to see if, eventually, the FSA could be used as an additional tool to help track the progression of a dementia diagnosis.

How long will the research last and what will I need to do?

We expect that you will be in this research study up until April 30th, 2020.

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What happens if I do not want to be in this research?

Participation in research is completely voluntary. You can decide to participate or not to participate.

Your alternative to participating in this research study is to not participate.

Detailed Information: The following is more detailed information about this study in addition to the information listed above.

Who can I talk to?

If you have questions, concerns, or complaints, or think the research has hurt you, talk to the research team:

Kaitlin Knapp
(317) 338-3067.
Monday through Friday from 8:30am-4:30pm.

This research has been reviewed and approved by the St. Vincent Institutional Review Board ("IRB"). You may talk to them at (317) 338-2194 or research@stvincent.org if:

- Your questions, concerns, or complaints are not being answered by the research team.
- You cannot reach the research team.
- You want to talk to someone besides the research team.
- You have questions about your rights as a research subject.
- You want to get information or provide input about this research.

How many people will be studied?

We expect about 6 people here will be in this research study.

What happens if I say yes, I want to be in this research?

If you say, yes, to participating in the research, the following will happen;

- After signing the consent form, you will participate in the Face Stimulus Assessment.
- The FSA consists of three drawings that have a time limit of 60 minutes. If you do not finish all three drawings in 60 minutes, that is ok.
- During the time of the FSA administration, your LAR will be asked to leave the room so you are free from distractions.
- While you are working on your drawings the person administering your FSA will NOT be allowed to talk to you. Any questions you might have can/will be answered after the 60 minutes. However, if you need the directions again, they can provide the directions for the assessment.
- Once the FSA has been completed, your LAR may return to the room for your questionnaire.

Detailed Information: The following is more detailed information about this study in addition to the information listed above.

Who can I talk to?

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- While you are working on your drawings the person administering your FSA will NOT be allowed to talk to you. Any questions you might have can/will be answered after the 60 minutes. However, if you need the directions again, they can provide the directions for the assessment.
- Once the FSA has been completed, your LAR may return to the room for your questionnaire.

- The questions will be asked by the FSA administrator and he/she will take notes on your answers.
- Once you have completed your FSA and questionnaire, you are free to leave.
- Upon completion of the study in April, you will have the option to keep your original drawings and questionnaire. More information is provided below on if you decide to keep your drawings.

What happens if I say yes, but I change my mind later?

You can leave the research at any time it will not be held against you during the course of the study.

If you decide to leave the research after administration of the FSA, you will be fully removed from the study Your FSA drawings and questionnaire can be returned to you upon request, otherwise they will be destroyed. However, after the study has ended (April 30th, 2020), you will not have the ability to leave the study.

Is there any way being in this study could be bad for me? (Detailed Risks)

The potential risks for being in the study include, loss of confidentiality and feeling uncomfortable during the questionnaire given after FSA administration. The following are steps that are put in place to limit those potential risks.

To minimize the potential risk of loss of confidentiality, you will be provided a unique ID number that will be used for all study documents and names will not be connected to identifying information collected such as your age range, gender, and dementia stage diagnosis.

To minimize feeling uncomfortable during the questionnaire you have the ability to skip any questions you do not feel comfortable answering. Your LAR will not be present during the administration of the FSA; however, they may return into the room for the questionnaire.

What happens to the information collected for the research?

Efforts will be made to limit the use and disclosure of your personal information, including research study and medical records, to people who have a need to review this information. We cannot promise complete secrecy. Organizations that may inspect and copy your information include the IRB and other representatives of this organization.

Once the study has ended you will have the choice to be given the original physical copies of my FSA assessment and questionnaire.

- The questions will be asked by the FSA administrator and he/she will take notes on your answers.
- Once you have completed your FSA and questionnaire, you are free to leave.
- Upon completion of the study in April, you will have the option to keep your original drawings and questionnaire. More information is provided below on if you decide to keep your drawings.

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Is there any way being in this study could be bad for me? (Detailed Risks)

The potential risks for being in the study include, loss of confidentiality and feeling uncomfortable during the questionnaire given after FSA administration. The following are steps that are put in place to limit those potential risks.

To minimize the potential risk of loss of confidentiality, you will be provided a unique ID number that will be used for all study documents and names will not be connected to identifying information collected such as your age range, gender, and dementia stage diagnosis.

To minimize feeling uncomfortable during the questionnaire you have the ability to skip any questions you do not feel comfortable answering. Your LAR will not be present during the administration of the FSA; however, they may return into the room for the questionnaire.

What happens to the information collected for the research?

Efforts will be made to limit the use and disclosure of your personal information, including research study and medical records, to people who have a need to review this information. We cannot promise complete secrecy. Organizations that may inspect and copy your information include the IRB and other representatives of this organization.

Once the study has ended you will have the choice to be given the original physical copies of my FSA assessment and questionnaire.

Digital copies of your de-identified FSA documents will be held on a password protected computer and additional hardcopies will be secured by Herron School of Art + Design's masters art therapy program used for educational purposes only.

No information which could identify you will be shared in publications about this study nor will databases in which documents may be stored. The de-identified data will be retained indefinitely. Documents that contain your personal health information (such as name, age, gender, and dementia stage diagnosis) will be stored behind two password protected excel spreadsheets on Ascension St. Vincent's server and will be destroyed at 7 years after the completion of the study.

Your information or samples that are collected as part of this research will not be used or distributed for future research studies, even if all of your identifiers are removed.

_____ I **DO** wish to receive the original copies of my FSA documents for my own records and understand the documents are my responsibility at the end of the study.

_____ I **DO NOT** wish to receive the original copies of my FSA documents for my own records and understand my original copies will be destroyed after competition of the study.

Please provide contact information below if you **DO** wish to receive the original copies:

MEDIA AUTHORIZATION

Images of your completed FSA drawings (in the form of scans) collected by this study will contain no identifying information.

Authorization Statement
I understand that I may refuse to initial this image authorization. If I do not initial this authorization I CANNOT participate in this research study. I understand that St.Vincent will not provide or withhold any of my medical treatment based on my initialing or refusing to initial this authorization statement. I understand that I have a right to request the medical imaging (photographs, digital images, and video) or electronic interviews to stop. I understand that I have the right to revoke this authorization in writing at any time.

I can cancel my authorization to use my FSA drawings at any time by contacting the Principal Investigator of the study. The Principal Investigator can be reached by phone at (317) 338-3067 or by sending a letter to:

Kaitlin Knapp
Ascension St. Vincent Hospital
2001 W 86th St
Indianapolis, IN 46260

By initialing below, I hereby transfer and grant **Kaitlin Knapp, Ashleigh Mower, and Eileen Misluk** the exclusive right to use my de-identified FSA drawings for this research project and related media such as journals, books, presentations, magazines, pamphlets, electronic (internet) and other written and video formats.

_____ I **DO** authorize the use of my FSA drawings for this study.
Initials

_____ I **DO NOT** authorize the use of my FSA drawings for this study.
Initials

Your signature documents your permission to take part in this research. Please keep a copy of this Informed Consent for your records.

Signature of subject	Date
Printed name of subject	
Signature of person obtaining consent	Date
Printed name of person obtaining consent	
Signature of Legally Authorized Representative	Date
Printed name of Legally Authorized Representative	

Check Relationship to Subject:

☐ Legal Guardian or Legally Authorized Representative for Medical Care (LARM)
☐ Spouse ☐ Adult Son or Daughter ☐ Mother or Father ☐ Adult Brother or Sister
☐ Other, explain:

Reason subject is unable to sign for self:

RESEARCH PATIENT BILL OF RIGHTS

I have been asked to participate in a research study. Before I make a decision on whether or not I want to participate in this study, I have the right:

1. To be told the reason why this study is being done.
2. To be told how the study will be done and what kind of medication or device will be used
3. To know the different types of side effects to expect from my participation in the study.
4. To know what benefits I will receive from my participation in this study.
5. To be told what other treatment is available for me, including the risks and benefits.
6. To be told what other treatments are available to me after the study has been completed.
7. To be given an opportunity to ask any questions concerning the medical experiment or the procedures involved.
8. To stop the study at any time and know I will continue to receive good care.
9. To receive a copy of the patient rights and the signed and dated informed consent form.
10. To make up my mind about being part of the study without feeling forced to participate.

APPENDIX C

ADDITIONAL FSA OBSERVATION FORM

ID Code #:
Date:

Additional FSA Observation Form

COMPLETION

Did the participant complete the FSA in the allotted 60 minute time frame?

_____ Yes _____ No Notes:

TIME

How long did it take for the participant to complete the FSA (in minutes)?

_____

REDIRECTION

Did the participant need redirection?

_____ Yes _____ No Notes:

If yes, how many times did the participant need redirection?

_____

Did the participant need to have the directions repeated?

_____ Yes _____ No Notes:

If yes, how many times did the participant need repeated directions?

_____

MOTOR FUNCTIONING

Did the participant have the ability to hold the markers?

_____ Yes _____ No Notes:

Did the participant have the ability to take the caps off of the markers without help?

_____ Yes _____ No Notes:

ID Code #:
Date:

Did the participant need grip assistance (foam tubes on markers)?

_____ Yes _____ No Notes:

Fine motor skills: Was the participant able to make small and/or detailed marks on the page?

_____ Yes _____ No Notes:

Gross motor skills: Was the participant able to make large and/or concise marks on the page?

_____ Yes _____ No Notes:

Use the space provided below to list any motor functioning observations that that do not fit the criteria above.

NOTEABLE VERBALIZATIONS /BEHAVIORS

Did verbalizations about the image match what was being drawn?

_____ Yes _____ No Notes:

Did any specific imagery and/or verbalizations elicit a change in behavior?

_____ Yes _____ No Notes:

Use the space provided below to list any motor notable verbalizations / behaviors that do not fit the criteria above.